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GRANVILLE, OH 43023

EXAMINER

SORKIN, DAVID L

ART UNIT PAPER NUMBER

1723

DATE MAILED: 09/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/044,015

Applicant(s)

BOEYE, ISABELLE

Examiner

David L. Sorkin

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 May 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 9-24 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 May 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 9-22, drawn to an apparatus comprising a mixer and applicator, classified in class 239, subclass 142.
 - II. Claim 23 and 24, drawn to a process of entraining a component in a carrier fluid and supplying an applicator the resulting mixed fluid, classified in class 239, subclass 10.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the process requires mixing a carrier fluid and "components" of a size composition. However, the apparatus could be used to mix a carrier fluid and a single component, such as water and a specific organosilane compound. The process requires that a carrier fluid be introduced at an end of a tubular chamber; however, the apparatus could be used in a process where carrier fluid is introduced at a point between the ends of a tubular chamber. For example, fluid(s) could be introduced through the side wall of vertically oriented chamber at a point below the top end, with the top end being capped off.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

5. During a telephone conversation with Stephen Barns on 04 September 2003 a provisional election was made with traverse to prosecute the invention of Group I, claims 9-22. Affirmation of this election must be made by applicant in replying to this Office action. Claims 23 and 24 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Drawings

6. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference signs mentioned in the description: "10". See page 7, line 13.

7. The drawings are objected to as failing to comply with 37 CFR 1.84(q) because in Fig. 1 the following reference character has no lead line: "38".

8. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

9. In claim 10, line 7, "camber" apparently should read - - chamber - -.

Claim Rejections - 35 USC § 112

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 10-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention:

12. Claim 10, from which claims 11-22 depend, recites that the apparatus comprises "at least two serially connected stages ...; and a second stage". It is unclear if a total of at least three stages are required or if an apparatus having only two stages would be within the scope of the claim. Unless applicant desires that the claim require at least three stages, it is suggested that in lines 1-2 of the claim "two serially connected stages" read -- first and second serially connected stages -- and that in line 8, "a second stage" read -- said second stage --. In any case, it must be made clear how many stages are required.

13. In claim 21, in a means-plus-function recitation, the phrase "the applicator reservoir" is recited. There is lack of antecedent basis from this phrase. It is unclear if the "applicator reservoir" is a required structural element of the claimed apparatus or if the applicator reservoir is merely being mentioned in the context of the function of monitoring and adjusting equipment.

Claim Rejections - 35 USC § 102

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

15. Claims 9-11, 13, 18 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Potchen (US 2,890,868). Claim 9 requires an apparatus comprising an in-line mixer in flow communication with an applicator. Potchen ('868) discloses an apparatus comprising a mixer (reference character 10, or a plurality thereof) and an applicator (35). Claim 9 also discusses the intended use of the apparatus as well as components thereof. Specifically it is stated that the apparatus is intended to be used "for the substantially continuous preparation and application of a sized composition to glass fibers", that the mixer is "for preparing the size [composition]" and that the applicator is "for applying the size [composition] to said fibers". While Potchen ('868) does not discuss an intended operation of applying material to glass fibers, it is considered that the apparatus of Potchen ('868) is capable of being used in the manner stipulated by claim 9. Applicant is advised that "the manner or method in which such machine is to be utilized is not germane to the issue of patentability of the machine itself" *In re Casey* 152 USPQ 235 (CCPA 1967). Also, "[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim" *Ex parte Thilbault* 164 USPQ 666, 667 (Bd. App. 1969). Regarding claim 10, the in-line mixer comprises at least two serially connected stages (see col. 3, lines 20-26 which explains that plural mixer units 10 may be arranged serially), a first of said stages (a first mixer unit 10) comprising a first tubular chamber (11) having an inlet end (top end in Fig. 3) and an outlet end (bottom

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end in Fig. 3), means (22) within said first chamber for mixing materials introduced therein with a carrier fluid flowing therethrough, a means (14,15,16,17) connected to the inlet end of said first chamber for introducing a controlled amount of a carrier fluid into said first chamber, and at least one means (14a,15a,16a,17a) connected to said first chamber for introducing into said chamber a controlled amount of a component material to be mixed with said carrier fluid; and a second stage (a second mixer unit 10) comprising a second tubular chamber (11) having an inlet end (top end in Fig. 3) and an outlet end (bottom end in Fig. 3), wherein said inlet end of said second chamber is in flow communication with said outlet end of said first chamber (see col. 3, lines 20-26).

Note: in an alternative ground for rejection of claim 10, the first stage may be considered an upper portion of mixer 10 as shown in Fig. 3 including the uppermost mixing disc "22" while the second stage may be considered a lower or middle portion of mixer 10, including subsequent mixing discs "22". Regarding claim 11, said means for introducing a controlled amount of a component material to be mixed with said carrier fluid comprises an injector (15) mounted in said first tubular chamber for injecting materials into said chamber, and a flow regulator (16) connected to said injector for regulating the amount of said component to said injector for regulating the amount of said component material introduced through said injector. Regarding claim 13, said means for introducing a controlled amount of a component material to be mixed with said carrier fluid comprises at least one injector (15) mounted within a cylindrical ring (corresponding to section view Fig. 10) having an internal diameter substantially the said as said first chamber (see Fig. 3), said ring being affixed to said first chamber

upstream of said outlet end and in flow communication therewith (see Fig. 3); and a flow regulator (16) connected to said injector for regulating the amount of said component material introduced through said injector. Note: in an alternative ground for rejection of claim 13, the first stage may be considered an upper portion of mixer 10 as shown in Fig. 3 including the uppermost mixing disc "22" (as explained with regard to an alternative ground for rejection of claim 10 above) while the second stage may be considered a middle portion of mixer 10, including for example second and third mixing discs "22" and the third stage may be considered a still lower portion of mixer 10, for example including forth and fifth mixing discs "22". Regarding claim 18, the apparatus further comprises a third stage (see col. 3, lines 20-26, especially line 25, "two or more"), comprising a third tubular chamber (11) having an inlet end and an outlet end, wherein said inlet end is in flow communication with said outlet end of said second chamber; and means (22) within said third chamber for mixing materials flowing therethrough. Regarding claim 20, at least one injector (15) mounted within a cylindrical ring (corresponding to section view Fig. 10) having an internal diameter substantially the same as said third chamber (see Fig. 3), said ring being affixed to said third chamber and in flow communication therewith to permit introduction of a controlled amount of a component material to the fluid flowing through said third chamber; and a flow regulator (16) connected to said injector for regulating the amount of said component material introduced through said injector.

16. Claims 9, 10, 18 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakamura et al. (US 5,482,368). Claim 9 requires an apparatus comprising an in-

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line mixer in flow communication with an applicator. Nakamura ('368) discloses an apparatus comprising a mixer (reference character 4) and an applicator (12). Claim 9 also discusses the intended use of the apparatus as well as components thereof.

Specifically it is stated that the apparatus is intended to be used "for the substantially continuous preparation and application of a sized composition to glass fibers", that the mixer is "for preparing the size [composition]" and that the applicator is "for applying the size [composition] to said fibers". While Nakamura ('368) does not discuss an intended operation of applying material to glass fibers, it is considered that the apparatus of Nakamura ('368) is capable of being used in the manner stipulated by claim 9.

Applicant is advised that "the manner or method in which such machine is to be utilized is not germane to the issue of patentability of the machine itself" *In re Casey*, supra.

Also, "[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim" *Ex parte Thilbault*, supra. Regarding claim 10, the in-line mixer comprises at least two serially connected stages (4b,4a,4b,4a; see Fig. 1), a first of said stages (the first "4b") comprising a first tubular chamber (the portion of "4" corresponding to the first "4b" in Fig. 1) having an inlet end (at left in Fig. 1) and an outlet end (at right in Fig. 1), means (4b) within said first chamber for mixing materials introduced therein with a carrier fluid flowing therethrough, a means (2) connected to the inlet end of said first chamber for introducing a controlled amount of a carrier fluid into said first chamber, and at least one means (1) connected to said first chamber for introducing into said chamber a controlled amount of a component material to be mixed with said carrier fluid; and a second stage

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(the first "4a") comprising a second tubular chamber (the portion of "4" corresponding to the first "4a" in Fig. 1) having an inlet end (left end in Fig. 1) and an outlet end (right end in Fig. 1), wherein said inlet end of said second chamber is in flow communication with said outlet end of said first chamber (see Fig. 1). Regarding claim 18, the apparatus further comprises a third stage (the second "4b" in Fig. 1), comprising a third tubular chamber (the portion of "4" corresponding to the second "4b" in Fig. 1) having an inlet end and an outlet end, wherein said inlet end is in flow communication with said outlet end of said second chamber; and means (4b) within said third chamber for mixing materials flowing therethrough. Regarding claim 22, a means (11,13) for monitoring the concentration of a component material is between said mixer and applicator and automatically adjusting the volumes of the carrier fluid and component materials introduced into said mixer to maintain said concentration at a substantially constant value (see col. 3. lines 40-54).

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claim 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Potchen (2,890,868) as applied to claim 10 above. By "as applied to claim 10 above" in this instance only the main ground for rejection of claim 10 is being referred to, not what is indicated as the "alternative ground for rejection" above. Regarding claim 16,

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Potchen ('868) does not explicitly state that said second tubular chamber is larger in diameter and in length than said first tubular chamber. However, it is considered that col. 5 lines 21-26 and col. 3 lines 20-26 would have suggested such a larger second tubular chamber for the following reasons. Col. 5, lines 21-24 states "It may be, in cases where a number of substances are brought together, that the proportional size of the mixer will have to be increased to provide sufficient flow". Col. 3, lines 20-26 explains that after two substances are mixing in a first mixer, an additional substance may be added to the flow and the three substances mixed in a second mixer. In such as situation, col. 5 lines 21-26 would have suggested to one of ordinary skill in the art to have made the second mixer, including the tubular chamber thereof, proportionally larger to compensate for the additional flow. Regarding claim 17, the apparatus comprises at least one means (14,15,16,17) for introducing a controlled amount of a component in to said second chamber.

19. Claims 12, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Potchen (2,890,868) in view of Cadeo et al. (US 4,964,732). Claim 12 depends from claim 11, which is anticipated by Potchen ('868) as discussed above. Claim 12 further requires "an adjustable output pump and flow meter". Although Potchen ('868) discloses a pump (17) and a valve (16) to adjust the output of the pump, Potchen ('868) fails to disclose "an adjustable output pump and flow meter". Cadeo ('732) teaches a flow regulator comprising an adjustable output pump (6) and a flowmeter (10) (see col. 3, lines 19-30). It is considered that it would have been obvious to one of ordinary skill in the art to have substituted that adjustable output pump (6) and a flowmeter (10) of

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Cadeo ('732) for the pump and valve of Potchen ('868) because Potchen ('868) explicitly states regarding the pump and valve "[w]hile this is one particular method of proportioning the relative volumes of the two substances, others may be employed" (col. 3, lines 17-19). Furthermore, Cadeo ('732) explains that the adjustable output pump (6) and flowmeter (10) are particularly beneficial in mixing high viscosity fluids (see col. 3, lines 17-30) and Potchen ('868) is also concerned with mixing high viscosity fluids (see col. 1, lines 29-35; col. 1 line 69 to col. 2 line 1). Claim 14 depends from claim 11, which is anticipated by Potchen ('868) as discussed above. Claim 14 further requires "an adjustable output pump and flow meter". Although Potchen ('868) discloses a pump (17) and a valve (16) to adjust the output of the pump, Potchen ('868) fails to disclose "an adjustable output pump and flow meter". Cadeo ('732) teaches a flow regulator comprising an adjustable output pump (6) and a flowmeter (10) (see col. 3, lines 19-30). It is considered that it would have been obvious to one of ordinary skill in the art to have substituted that adjustable output pump (6) and a flowmeter (10) of Cadeo ('732) for the pump and valve of Potchen ('868) because Potchen ('868) explicitly states regarding the pump and valve "[w]hile this is one particular method of proportioning the relative volumes of the two substances, others may be employed" (col. 3, lines 17-19). Furthermore, Cadeo ('732) explains that the adjustable output pump (6) and flowmeter (10) are particularly beneficial in mixing high viscosity fluids (see col. 3, lines 17-30) and Potchen ('868) is also concerned with mixing high viscosity fluids (see col. 1, lines 29-35; col. 1 line 69 to col. 2 line 1). Claim 15, which depends from claim 14, further requires a plurality of injectors mounted within said cylindrical ring, each connected to

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an adjustable output pump. Potchen ('868) further discloses a plurality of injectors (15, 15a) mounted in said cylindrical ring, each injector connected to a pump (17, 17a). In accordance with the substitution discussed above with regard to parent claim 14, it is considered that it would have been obvious to one of ordinary skill in the art to have substituted each pump and valve set of Potchen ('868) with an adjustable output pump and flowmeter according to the teachings of Cadeo ('732), because Potchen ('868) explicitly states regarding the pump and valve "[w]hile this is one particular method of proportioning the relative volumes of the two substances, others may be employed" (col. 3, lines 17-19). Furthermore, Cadeo ('732) explains that the adjustable output pumps (6,7) and flowmeters (10) are particularly beneficial in mixing high viscosity fluids (see col. 3, lines 17-30) and Potchen ('868) is also concerned with mixing high viscosity fluids (see col. 1, lines 29-35; col. 1 line 69 to col. 2 line 1).

20. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Potchen (US 2,890,868) in view of Dearing, Sr. et al. (US 5,624,182). The apparatus of Potchen ('868) was discussed above with regard to claim 10. Claim 21, which depends from claim 10, further requires a means for monitoring application rate and adjusting volumes of carrier fluid and component materials introduced into the mixer to maintain a substantially constant supply at a reservoir. Potchen ('868) does not disclose such means. Dearing ('182) teaches means (65,87,100) for monitoring application rate and automatically adjusting the volumes of carrier fluid and component materials introduced into said mixer to maintain a substantially constant supply of material at an applicator reservoir (see col. 8, lines 33-40; col. 19, lines 1-55). It is considered that it would have

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been obvious to one of ordinary skill in the art to have provided the apparatus of Potchen ('868) with the means for monitoring and adjusting of Dearing ('182) because Potchen ('868) explicitly states "[w]hile this is one particular method of proportioning the relative volumes of the two substances, others may be employed" (col. 3, lines 17-19) and to achieve the advantage taught by Dearing ('182) of compensating for slight inaccuracies in other components of an apparatus (see col. 19, lines 1-55).

21. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. (US 5,482,368) in view of Dearing, Sr. et al. (US 5,624,182). The apparatus of Nakamura ('368) was discussed above with regard to claim 10. Claim 21, which depends from claim 10, further requires a means for monitoring application rate and adjusting volumes of carrier fluid and component materials introduced into the mixer to maintain a substantially constant supply at a reservoir. Nakamura ('368) does not disclose such means. Dearing ('182) teaches means (65,87,100) for monitoring application rate and automatically adjusting the volumes of carrier fluid and component materials introduced into said mixer to maintain a substantially constant supply of material at an applicator reservoir (see col. 8, lines 33-40; col. 19, lines 1-55). It is considered that it would have been obvious to one of ordinary skill in the art to have provided the apparatus of Nakamura ('368) with the means for monitoring and adjusting of Dearing ('182) to achieve the advantage taught by Dearing ('182) of compensating for slight inaccuracies in other components of an apparatus (see col. 19, lines 1-55).

22. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Potchen (US 2,890,868) in view of Nakamura et al. (US 5,482,368). The apparatus of Potchen

('868) was discussed above with regard to claim 10. Claim 21, which depends from claim 10, further requires means for monitoring concentration of a component between said mixer and applicator and automatically adjusting the volumes of the carrier fluid and component materials introduced into said mixer to maintain said concentration at a substantially constant value. Potchen ('868) does not disclose such means. Nakamura ('368) teaches a means (11,13) for monitoring the concentration of a component material is between a mixer and an applicator and automatically adjusting the volumes of the carrier fluid and component materials introduced into said mixer to maintain said concentration at a substantially constant value (see col. 3. lines 40-54). It is considered that it would have been obvious to one of ordinary skill in the art to have provided the apparatus of Potchen ('868) with the means for monitoring and adjusting of Nakamura ('368) because Potchen ('868) explicitly states "[w]hile this is one particular method of proportioning the relative volumes of the two substances, others may be employed" (col. 3, lines 17-19) and to achieve the advantage taught by Nakamura ('368) of providing a more consistent mixer product (see col. 1 lines 51-66 to col. 2 line).

Allowable Subject Matter

23. Claim 19 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. The closest prior art is Potchen ('868); however, Potchen ('868) does not disclose a ring, in which an injector is mounted, being at the location required by claim 19.

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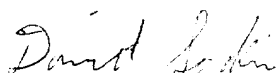
Conclusion

24. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David L. Sorkin whose telephone number is 703-308-1121. The examiner can normally be reached on 8:00 -5:30 Mon.-Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on 703-308-0457. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



David Sorkin